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ABSTRACT

Age and cognitive developmental level were used as independent variables in order to assess their relative effects on the number and kinds of self-referent constructs used by children and adolescents. Fifty-four 8-year-olds, sixty-four 12-year-olds, and forty-six 16-year-olds were recruited from their respective third, seventh, and eleventh grades in a middle-class suburban school district. All subjects were first given the Twenty Statements Test (TST), an instrument recognizing 20 answers to the questions, "Who am I?", and were then individually administered three of the four Piagetian tasks designed to measure levels of concrete and formal thought. The statements from the TST protocols were content analyzed into 32 categories (such as activities, possessions, interpersonal feelings and attitudes, kinship roles, sense of competence, moral worth, and existential aspect). Results of chi-square tests indicated significant increases, decreases, and curvilinear changes for both the age level and the cognitive-developmental level analyses. Results further indicated that researchers must be careful about treating age and cognitive-developmental level as equivalent factors. The hypothesis that the self-concept becomes increasingly differentiated with age was supported by neither the age nor the cognitive-developmental level analysis. Implications for further research are discussed. (Author/RH)

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Age and Cognitive-Developmental factors in the Development of Self-Conception

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Ever since the self became a legitimate area of study once again in contemporary psychology, researchers have been fairly active in refining methodologies and constructs associated with the concept of self. They also have been correlating self-concept with everything under the sun. As Ruth Wylie (1974) points out in her classic book on the self-concept, this inductive approach has resulted in a largely fragmented and disorganized literature. The problem may be most acute with regard to the study of the development of the self-concept, because empirical investigations have traditionally suffered for want of a theoretical orientation that would serve to integrate the diversity of phenomena associated with the construct. Recently, however, researchers of self-concept development have turned to the cognitive-structural perspective of Piaget, with the hope that the marriage of this organismic perspective to assessment of self-concept development would bear delicious fruit. The assumption of this deductive, as opposed to inductive approach, is that there are parallels between self-concepts and the concepts associated with physical and logical-mathematical knowledge. An additional assumption, in accordance with Werner's (1957) orthogenetic principle, may be that the self, as a cognitive concept, becomes increasingly differentiated, integrated, and hierarchically organized with development.

The appeal of this approach to the study of self-concept development is evidenced by the small, but steadily increasing number of studies that have used cognitive-developmental constructs. The study that I found to be of particular appeal was published by Montemayor & Eisen (1977). These authors were interested in determining whether or not the content of the self-concept would undergo a shift from concrete to abstract modes of self-representation with increasing development. Additionally, they were interested in determining whether or not increasing differentiation, in terms of a greater variety of accessible self-constructs, would be observed with development.

In order to test their hypotheses, Montemayor & Eisen administered an open-ended questionnaire, the Twenty Statements Test, to a sample of 10-18 year olds. This test requires 20 answers to the question, "Who Am I?" While a number of codification schemes have been developed to categorize responses to this test, Montemayor & Eisen used a scheme by Gordon (1968) that closely approximates the one presented in Table 1.

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Insert Table 1 about here

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As can be seen, the responses are coded in a pattern which approximates a concrete to abstract continuum. Chi-Square analyses on each of these categories revealed that younger subjects described themselves in terms of appearance, likes, and possessions - the concrete dimension. Adolescents, however, described themselves with a greater proportion of abstract, introspective terms. Several curvilinear age changes were also found, mostly in concrete categories. Furthermore, the differentiation hypothesis was supported, with adolescents using more categories for self-conception than younger children. In interpreting these findings, Montemayor & Eisen speculated that the age differences found were the result of a shift from concrete to formal thought. The authors claimed that "self-conceptions appear to undergo a developmental transformation, perhaps based upon the developing ability of the individual to draw inferences and hypotheses about underlying characteristics" (p. 318).

The purpose of the present study was to build upon the findings of Montemayor & Eisen. This research reflects two concerns:

1) The need to replicate existing methodologies in the study of the development of the self concept.

2) A concern that one must be careful when using age as a parameter of development, with the subsequent use of cognitive-developmental constructs to explain significant age changes. This concern reflects Wohlwill's (1973) caution that age as an anchor point for development cannot explain underlying mechanisms of change.

Thus, the present study is similar to Montemayor & Eisen's because the Twenty Statements Test was administered to several age groups and codified in a similar classification scheme. However, both age and cognitive-developmental level were used as independent variables in order to assess their relative effects on the number and kinds of self-referent constructs used by children and adolescents. Aditionally, it should be noted that Montemayor & Eisen used a larger number of age levels in their study than was used in the present research. To some extent, this should affect the comparability of findings across both studies.

Method

Fifty-four 8-year-olds (M CA = 8.79 years), 64 12-year-olds (M CA = 12.70 years), and 46 16-year-olds (M CA = 16.74 years) were recruited from their respective third, seventh, and eleventh grades in a middle-class suburban school district. All subjects were first given the Twenty Statements Test, and then individually administered three of four Piagetian tasks (conservation of substance, conservation of weight, oscillation of the pendulum, equilibrium in the balance). These tasks were designed to measure levels of concrete and formal thought. On the basis of task performance, 8-year-olds who were classified as either Transitional-Concrete Operational (passed the conservative of substance task, failed or were transitional on the conservative of weight task, scored at levels 2A or 2A & 2B on the balance

task; n = 12), or Concrete Operational (conserved both substance and weight, scored at levels 2A-2B or 2B on the balance task; n = 20) were included in the study. Al 12- and 16-year-olds performed adequately on the conservation of weight task. The Transitional-Formal subjects were those who scored at levels 2B and 2B-3A, 2B-3A and 2B-3A, and 3A for both formal thought tasks (n = 20 for 12-year-olds; n = 15 for 16-year-olds). The Formal-Operational subjects were those whose balance and pendulum task scores were any combination of levels 3A, 3A-3B and 3B (n = 13 for 12-year-olds; n = 18 for 16-year-olds).

Results & Discussion

The statements from the Twenty Statements Test protocols were content analyzed into the 32 categories presented in Table 1. Each statement was scored into one of the categories, such as activities (e.g., I play instruments, a stamp collector), possessions (e.g., I own 100 fish, a car owner), interpersonal feelings and attitudes (e.g., I like to be alone), kinship roles (e.g., a son, older sister), sense of competence (e.g., I am intelligent, creative), moral worth (e.g., I am evil), and existential (e.g., I am unique). Measures of interjudge and test-retest reliability, obtained from a pilot sample, indicated that the scoring system was satisfactorily reliable (r = .87; r = .53, respectively). As in the Montemayor & Eisen (1977) methodology, the percentages of subjects responding in each category at least once were calculated. Percentages were obtained according to both age and cognitive-developmental levels for all subjects. Since no significant sex differences were found on chi-square tests with age or cognitive-developmental level collapsed for each category, the data for both sexes were combined for all analyses. Only p values of less than .001 were considered significant because of the large number of analyses performed.

Table 2 shows the significant results of the analyses for age and cognitive-development level.

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Insert Table 2 about here

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Significant increases across age were found for the categories of interpersonal feeling, intellectual activities, and the sense of self-determination. There were significant decreases across age in the categories of judgments imputed to others, membership in an abstract category, and uncodable responses. Significant curvilinear age changes were found for the categories of ideological and belief references, the sense of competence, psychic style, and the sense of unity. Thus, the significant increases with age were mostly in categories that were largely introspective and self-reflective. The curvilinear changes were somewhat puzzling. These responses belonged to categories that were abstract and introspective. Perhaps similar self-referent terms have different meanings to younger and older children. These findings generally confirm those of Montemayor and Eisen (1977).

The picture, however, is not as clear when the category responses were scored according to cognitive-developmental level. Significant increases due to cognitive-developmental level were found for the categories of religion, judgments, likes and dislikes, occupational role, student role, interpersonal feelings, intellectual activities, and the sense of self-determination. Significant decreases were found for the categories of sex, SES, judgments imputed to others, membership in an abstract category, and uncodable responses. Finally, significant curvilinear cognitive-developmental changes were found in the categories of membership in an interacting group and the sense of competence.

While some of the changes were consistent with theoretical predictions, most significant cognitive-developmental changes were due to increases in concrete references to the self. Significant decreases were found in both concrete and abstract categories, and significant curvilinear cognitive-developmental changes were also found.

Finally, Montemayor & Eisen's differentiation hypothesis was not supported, either with age or cognitive-developmental level as independent variables. Significant sex differences were found ($F(1, 92) = 14.22$, $p \leq .001$) for the factor of sex, with females ($M = 9.918$) more differentiated than males ($M = 7.995$).

The results of the present study lead to several concerns and conclusions regarding the study of self-concept development. From a methodolgical standpoint, I believe that it is important that replication studies be encouraged in order to assess the reliability of past findings. This is particularly important when one is studying as messy a construct as the self-concept. Additionally, the inconsistent pattern of results as a function of cognitive-developmental level, as found in the present study, indicates that researchers must be careful about treating age and cognitive-developmental level as equivalent factors.

Theoretically, this research presents some thorny issues with which a researcher interested in the cognitive basis to the self-concept must content. For example, the most interesting developmental transformations, in my opinion, occur in the transition from childhood to adolescence. Yet, Blasi & Hoeffel (1974) argue that there is no validity to the assumption that personality development during adolescence closely parallels cognitive development. However, the hypothesis that the hypothetical-deductive

reasoning skills available to a formal reasoner will be reflected in abstract and/or hypothetical self-constructs has intuitive appeal. However, I suggest that several cautions be heeded:

First, a simplistic assessment of cognitive development as a stage must be avoided. Such concerns were voiced by Flavell (1981) in his presendential address to SRCD. Developmentalists must delineate with greater specificity those aspects of cognition that have a direct bearing on self-constructs. The relationship between identity and equivalence concepts and gender constancy serves as a good model. Perhaps we should be looking at adolescents' awareness that their selves are hypothetical constructs or theories. An investigation of the development of metacognitive self-awareness along Broughton's (1975) lines would highlight important developmental changes.

Second, it is apparent that greater emphasis has to be placed upon the role of social interaction in self-concept development. For the adolescent, the social milieu may be most salient, and interaction with peers who are continually examining and reflecting upon their attitudes and behavior may have more to bear on self-concept development than cognition per se. This intense level of peer interaction, where emphasis is placed upon the self within the context of friendships and groups, may account for the age-related changes in self-conception as found in Montemayor & Eisen's (1977) study.

Finally, the finding that formal thinkers used a higher proportion of concrete self-referents may be explained if one incorporates a symbolic interactionist approach within the current cognitive-structural framework. According to symbolic interactionism, self-concepts are defined by taking the perspective of the other. David Elkind (1980) elaborated this notion in his idea that the adolescent takes on an imaginary audience. In other

words, the self-consciousness so characteristic of the adolescent years is due to an increasing concern in how others perceive the self. According to Elkind, the construction of an imaginary audience is partially a function of the acquisition of formal operations. Elkind also states that it is during adolescence when "strategic interactions," or interactions involving a deliberate appraisal of another's thoughts, become prevalent. Thus, the increased use of concrete constructs to describe the self may reflect adolescents' desires to anchor their self-referent constructs in clear, well-defined terms for the benefit of their potential observers.

In sum, the search for interrelationships between cognitive and self-concept development remains a worthy endeavor. Granted, we have to be careful in variable and task selection, and more creative in our overall approach to the study of these phenomena. For example, I have recently conducted a pilot investigation that involved the use of tasks that attempt to assess the evolution of the child's awareness of his or her own actions. These tasks were derived from those described by Piaget (1976) in The Grasp of Consciousness. Analyzing TST responses collapsed into three broad categories (concrete, interpersonal, abstract) according to levels of consciousness development has yielded promising results. Specifically, those children who could reflect upon their own actions responded to the Twenty Statements Test with the most abstract concepts.

Thus, the study of the self from a cognitive-developmental perspective may hold many hidden riches. If we give up our pursuit in statistical despair, and try to divorce the self-concept from developing cognitive abilities, we will artificially segment our understanding of the ontogeny of a unified and dynamic self.

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Table I

Twenty Statements Test Categories

Physical Attributes and Concrete Characteristics

- Activities
- Age
- Intellectual Concerns and Activities
- Judgments and Tastes
- Physical Attributes
- Political Affiliation
- Possessions and Concrete Resources
- Racial or National Heritage
- Religion
- Sex
- Situational References
- Social Status
- Territory & Citizenship

Interpersonal References to the Self

- Interpersonal Feelings and Attitudes
- Interpersonal Style
- Judgments Imputed to Others
- Kinship
- Membership in an Actual Interacting Group
- Occupational Role
- Student Role

Introspective and Abstract References to the Self

- Existential - Individuating
- Hypothetical Self
- Ideological and Belief References
- Membership in An Abstract Category
- Psychic Style
- Sense of Competence
- Sense of Moral Worth
- Sense of Self Determination
- Sense of Unity

Uncodable

Table 2

Percentage of Subjects at Each Age Using Category At Least Once

Twenty Statements Test Category	Age 8	12	16	
Interpersonal Feeling	9	39	56	(32.67)[a]
Judgment-Others	38	12	12	(21.80)
Ideological Self	13	3	30	(24.32)
Intellectual Activities	3	18	24	(15.07)
Sense of Self Determination	13	18	55	(36.72)
Sense of Competence	56	18	61	(24.58)
Psychic Self	59	27	73	(20.98)
Sense of Unity	9	3	21	(15.27)
Member of Abstract Categor	59	21	15	(35.95)
Uncodable Responses	22	6	0	(25.09)

Percentage of Subjects At Each Cognitive-Developmental Level Using Category At Least Once

Twenty Statements Test Category	Cognitive-Developmental Level: Transitional Concrete	Concrete Operational	Transitional Formal	Formal Operational	
Sex	75	65	29	29	(34.97)[a]
Religion	0	5	14	18	(17.59)
SES	25	5	3	4	(32.68)
Judgments, Tastes, Likes	25	50	51	75	(24.89)
Occupational Role	0	5	11	25	(34.22)
Student Role	33	60	66	96	(31.95)
Member of Interacting Group	33	5	40	46	(29.48)
Interpersonal Feeling	0	15	34	68	(88.30)
Judgements-Others	42	35	14	11	(27.65)
Intellectual Activities	0	5	26	18	(34.67)
Sense of Self Determination	7	10	23	57	(64.94)
Sense of Competence	58	55	23	64	(20.28)
Member of Abstract Category	50	65	17	21	(41.90)
Uncodable Responses	25	20	0	4	(35.98)

Note. Categories listed are those that were significant at $p < .001$.

a = Numbers in parentheses indicate results of chi-square analyses significant at $p < .001$.